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**Kawada et al.**

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(54) **ELECTRIC APPARATUS WITH SUPPORT LEG**

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***G06F 1/16*** (2006.01)

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CPC ..... ***H05K 5/0217*** (2013.01); ***G06F 1/166*** (2013.01); ***G06F 1/1618*** (2013.01); ***G06F 1/1681*** (2013.01)

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See application file for complete search history.

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(57) **ABSTRACT**

An electronic device **100** includes: a hinge mechanism **120** configured to rotate, on a portion in which a first casing **101** is connected to a second casing **102**, the second casing **102** to allow the electronic device **100** to switch from a closed position through an opened position to an inverted position; and exterior components **123** and **124** each configured to rotate with the second casing **102** when switching between the opened position and the inverted position is performed, and to switch between a state where the exterior component projects from the back surface of the first casing **101** to be a leg for the electronic device **100** in the opened position, and a state where the exterior component projects from the top surface of the first casing **101** to be a leg for the electronic device **100** in the inverted position.

**5 Claims, 6 Drawing Sheets**

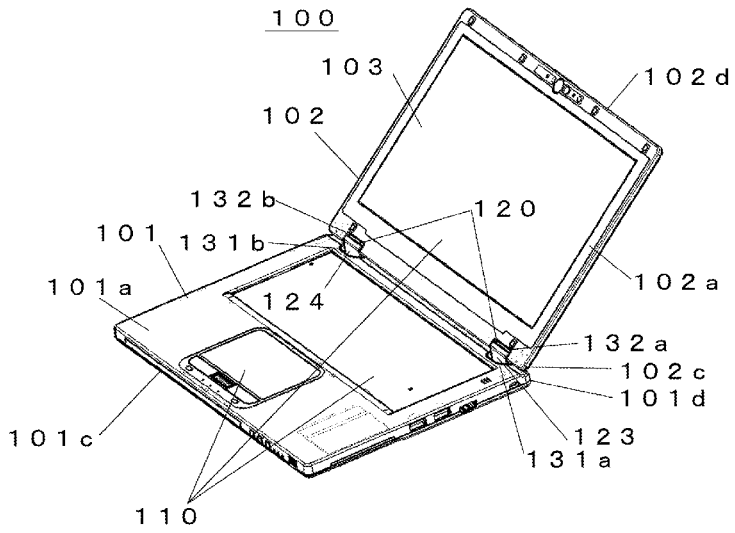

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Fig. 1

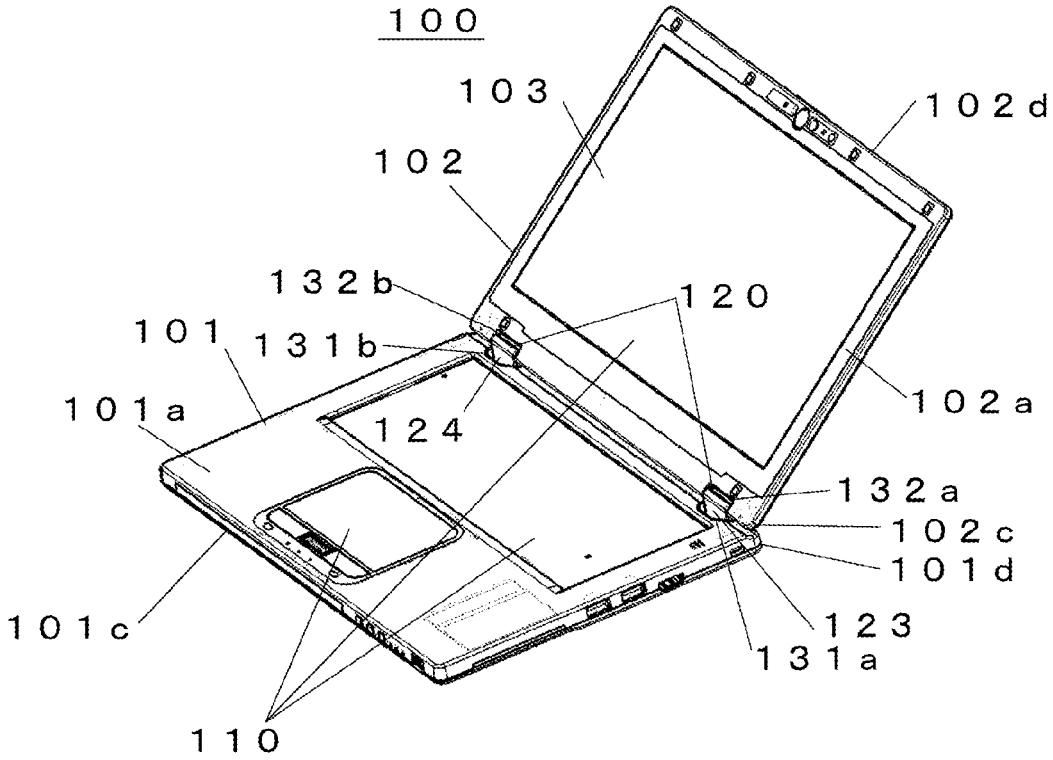

100
103
102d
102
132b
120
101
131b
102a
101a
124
132a
102c
101d
123
101c
131a
110

Fig. 2

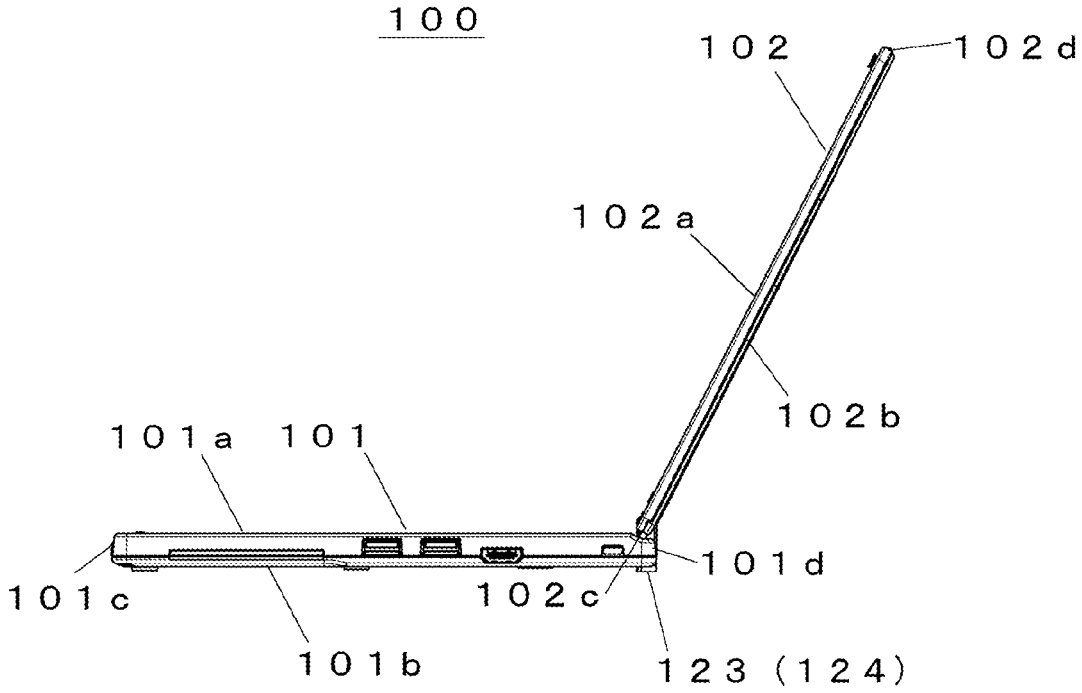

100
102
102d
102a
102b
101a
101
101d
101c
102c
101b
123 (124)

Fig. 3

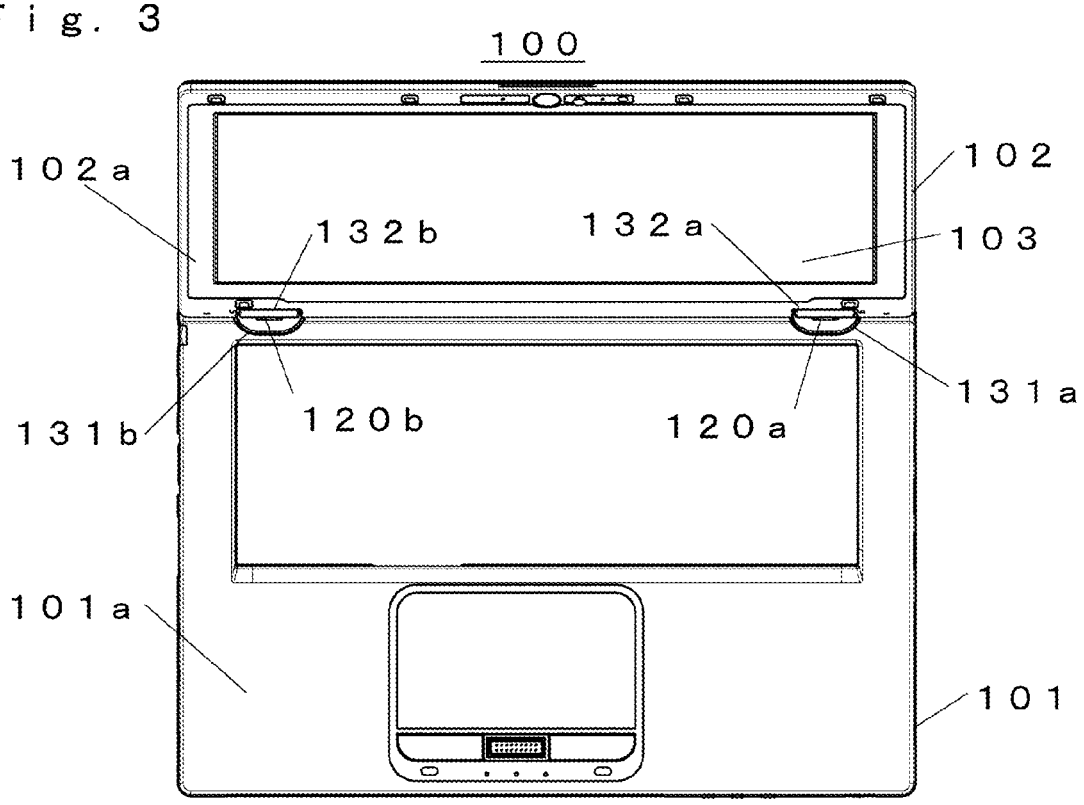



Fig. 4

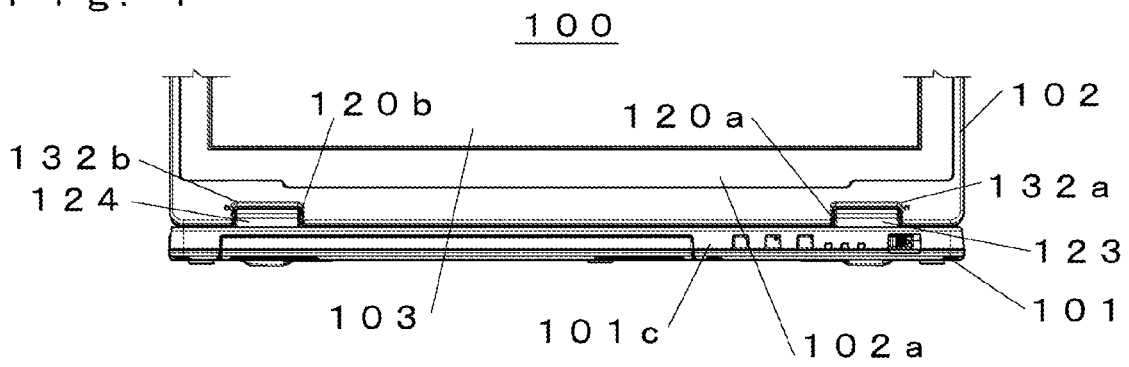



Fig. 5

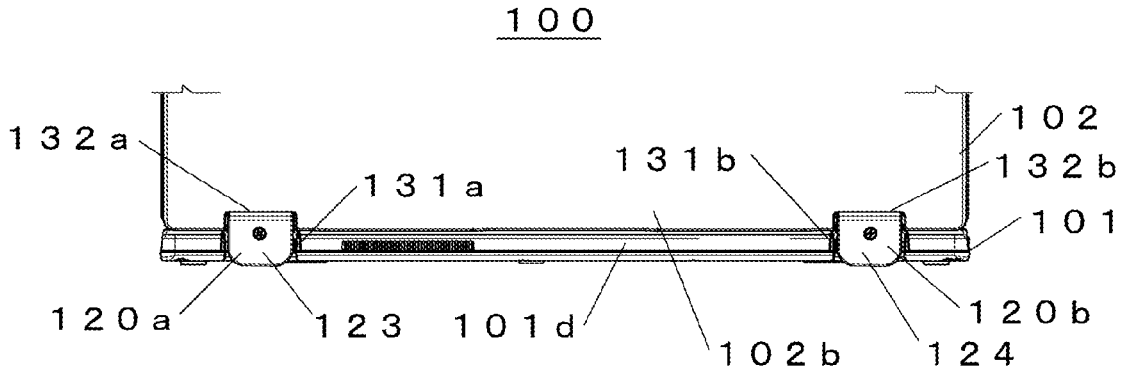
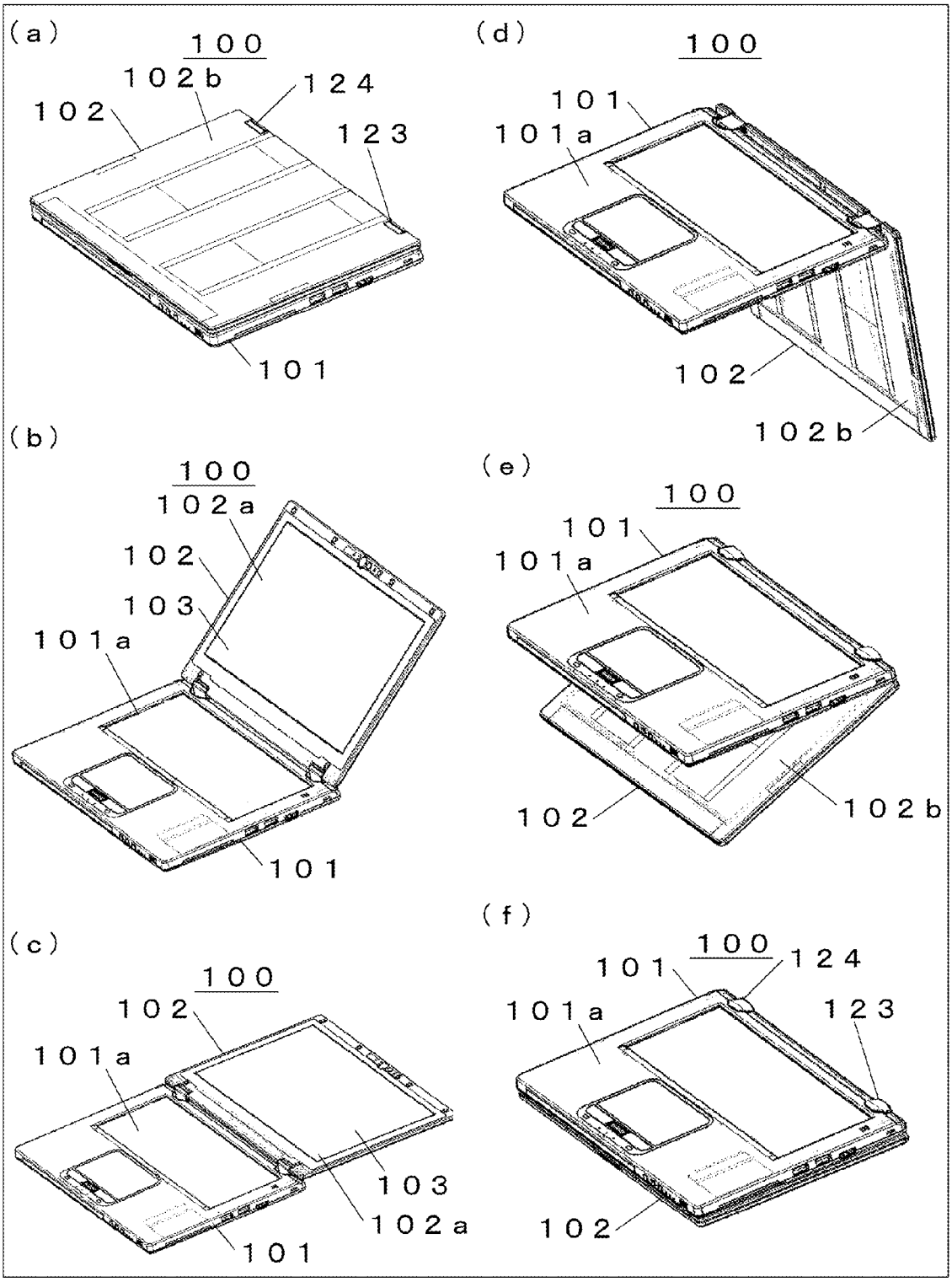


Fig. 6


(a)
100
102b
124
102
123
101
(d)
100
101
101a
102
102b
(b)
100
102a
102
103
101a
101
(e)
100
101
101a
102
102b
(c)
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102
101a
103
102a
101
(f)
101
100
124
101a
123
102

Fig. 7

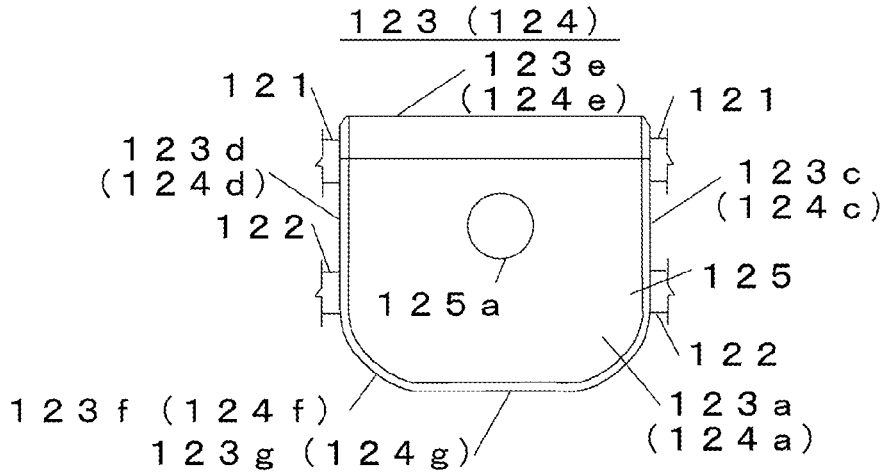



Fig. 8

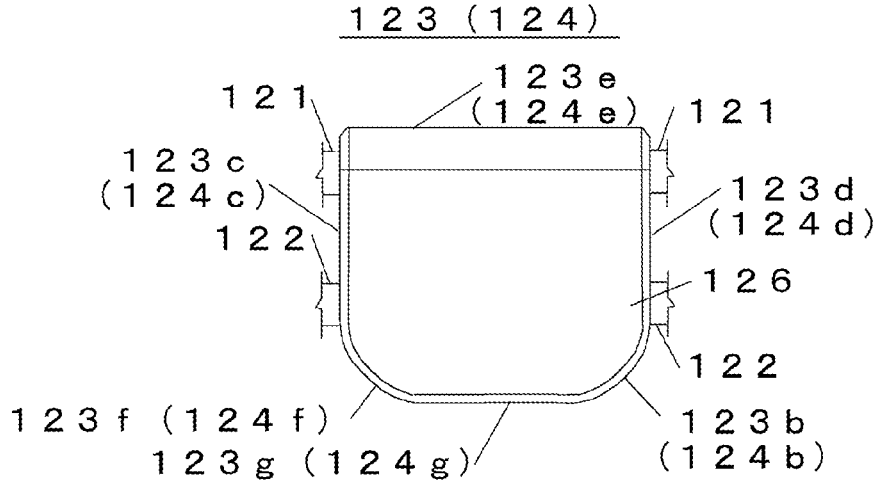



Fig. 9

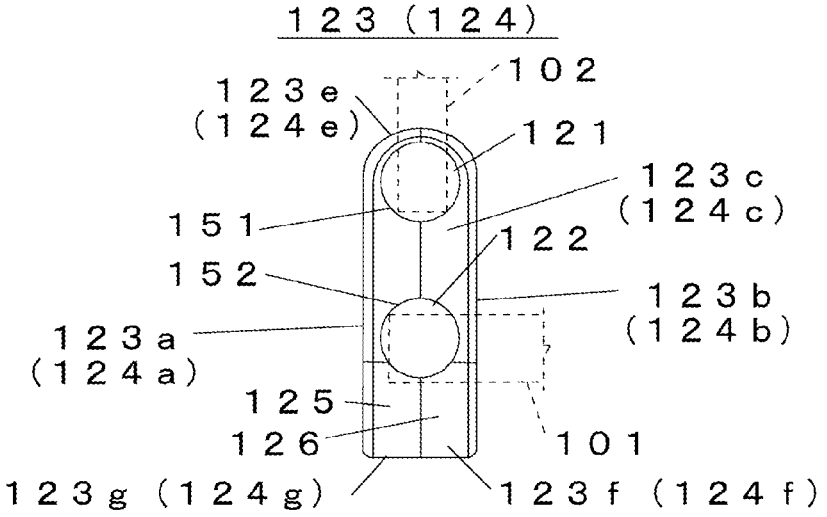
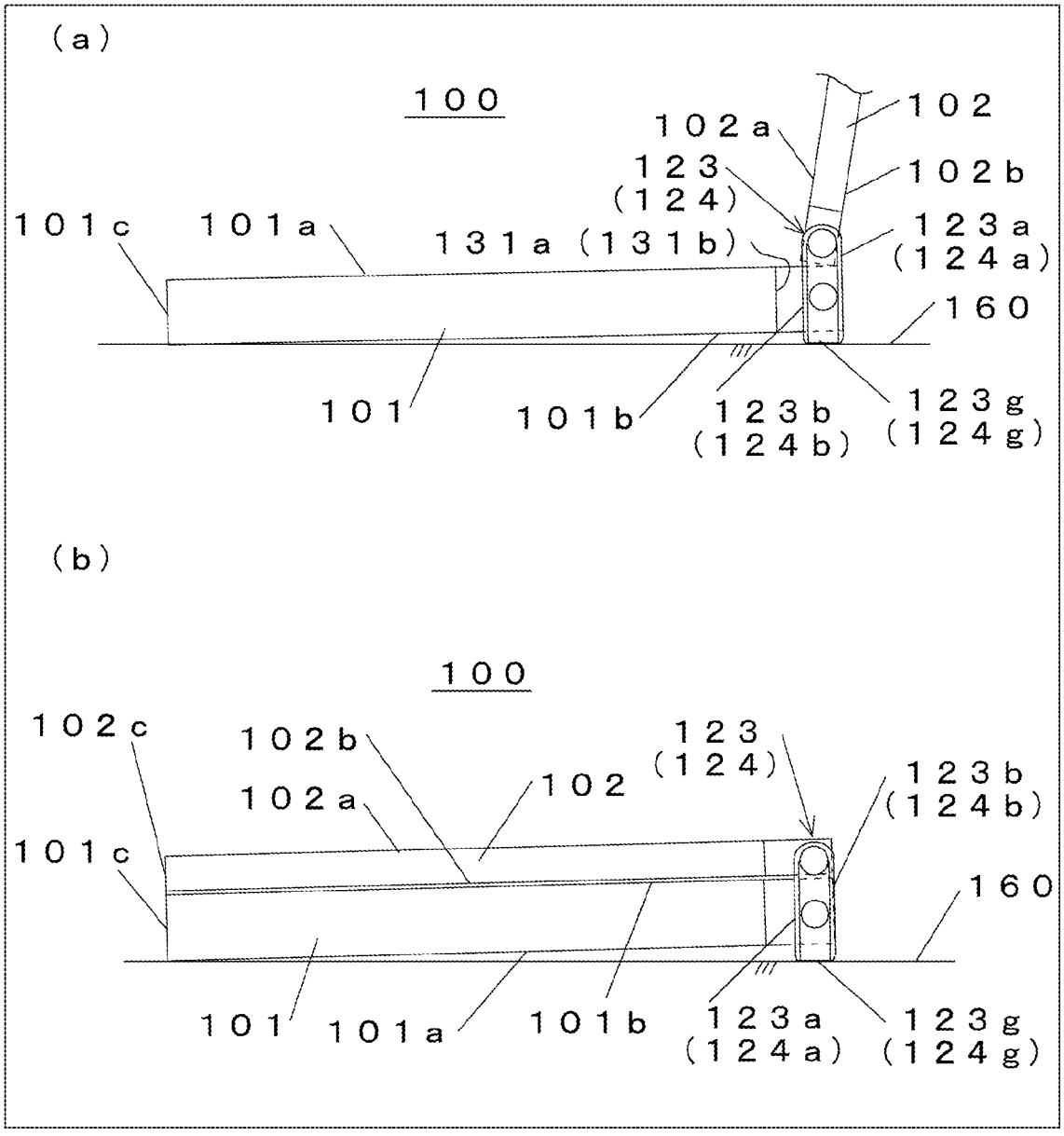


Fig. 10


(a)
100
102
102a
123
(124)
102b
101c
101a
131a (131b)
123a
(124a)
160
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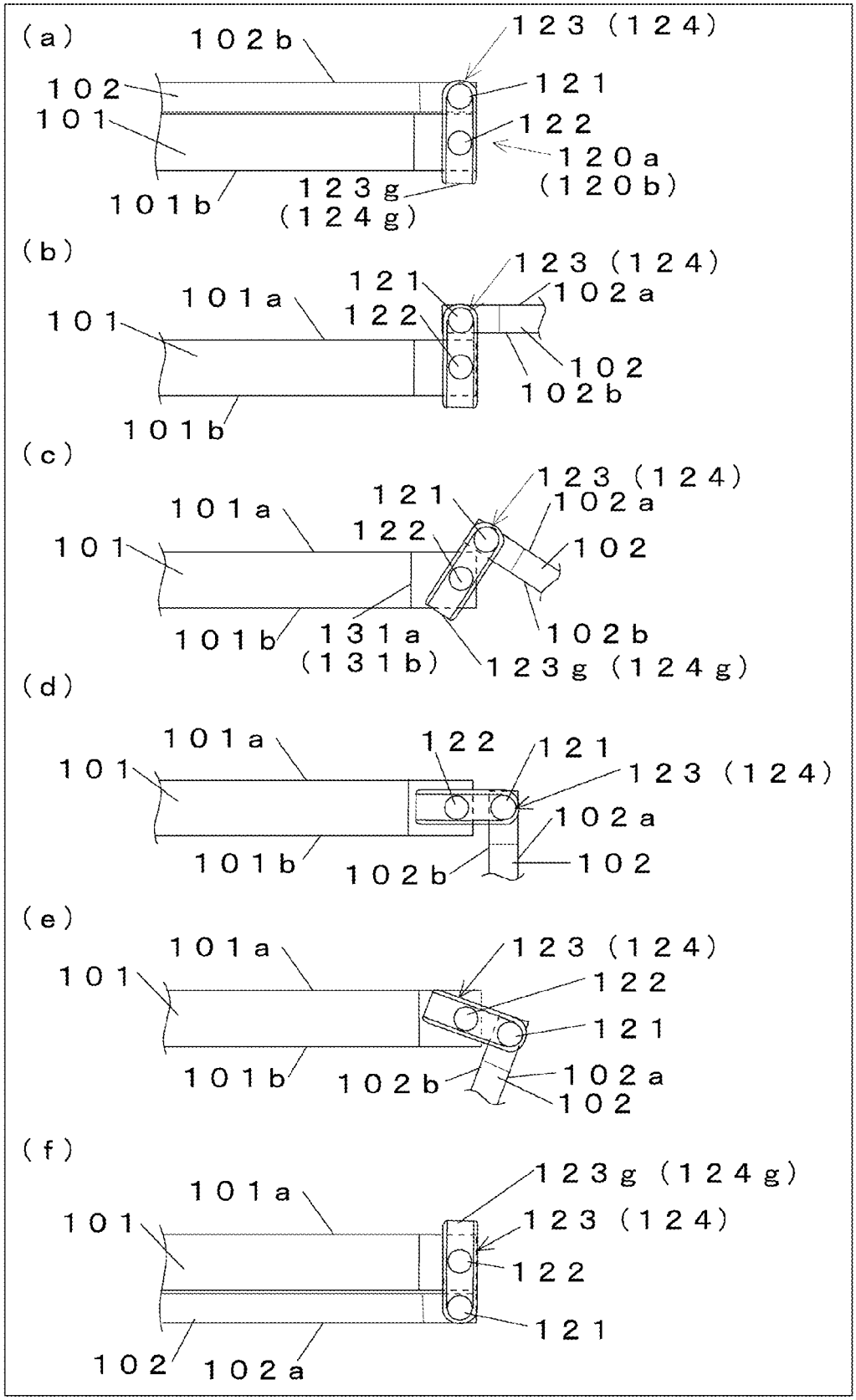
101b
123b
(124b)
123g
(124g)
(b)
100
102c
102b
123
(124)
102a
102
123b
(124b)
101c
160
101
101a
101b
123a
(124a)
123g
(124g)

Fig. 11


(a)
102b
123 (124)
102
121
101
122
120a
(120b)
123g
(124g)
101b
(b)
123 (124)
121
101a
102a
122
101
102
102b
101b
(c)
123 (124)
121
101a
102a
122
101
102
131a
(131b)
102b
123g (124g)
101b
(d)
101a
122
121
101
123 (124)
102a
102
101b
102b
(e)
101a
123 (124)
101
122
121
102a
102
101b
102b
(f)
123g (124g)
101a
101
123 (124)
122
121
102
102a

# ELECTRIC APPARATUS WITH SUPPORT LEG

## BACKGROUND

1. Field

The present disclosure relates to electronic devices having a first casing and a second casing that are connected to each other by a hinge mechanism.

2. Description of the Related Art

Japanese Laid-Open Patent Publication No. 9-148757 discloses an electronic device in which a cover for protecting a body surface can be rotated about a hinge shaft and folded onto the back side of the body.

In this electronic device, a hinge unit is provided between the cover and the body and pivotally supported, through the hinge shaft, by the cover and the body. In the hinge unit, a stand component for tilting the body is accommodated. The stand component can be drawn from the hinge unit.

## SUMMARY

The present disclosure is to make available an electronic device that can switch from a closed position where a front surface of a second casing overlaps a front surface of a first casing, through an opened position where the second casing is raised relative to the first casing, to an inverted position where a back surface of the second casing overlaps a back surface of the first casing, and that includes a component useful as a leg.

An electronic device of the present disclosure includes: a first casing having an operation section on a top surface; a second casing having a display on a front surface; a hinge mechanism configured to connect the first casing to the second casing, the hinge mechanism configured to rotate the second casing, relative to the first casing, on a connection portion in which the first casing is connected to the second casing, to allow the electronic device to switch from a closed position where the front surface of the second casing overlaps the top surface of the first casing, through an opened position where the second casing is raised relative to the first casing, to an inverted position where a back surface of the second casing overlaps a back surface of the first casing, the hinge mechanism configured to rotate according to the second casing being rotated when switching between the opened position and the inverted position is performed; and an exterior component configured to rotate with the hinge mechanism when switching between the opened position and the inverted position is performed, and to switch, by rotating with the hinge mechanism, between a state where the exterior component projects from the back surface of the first casing to be a leg for the electronic device in the opened position, and a state where the exterior component projects from the top surface of the first casing to be a leg for the electronic device in the inverted position.

The present disclosure is to make available an electronic device that can switch from a closed position through an opened position to an inverted position, and that includes a component useful as a leg.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an electronic device, in an opened position, according to one embodiment;

FIG. **2** is a side view of the electronic device, in the opened position, according to the embodiment;

FIG. **3** is a top view of the electronic device, in the opened position, according to the embodiment;



FIG. **4** is a front view illustrating a front side end face of a first casing according to the embodiment;

FIG. **5** is a front view illustrating a rear side end face of the first casing according to the embodiment;

FIG. **6** is a perspective view of the electronic device according to the embodiment in a state where the electronic device is being switched from a closed position through the opened position to an inverted position;

FIG. **7** is a front view of an exterior component according to the embodiment;

FIG. **8** is a rear view of the exterior component according to the embodiment;

FIG. **9** is a side view of the exterior component according to the embodiment;

FIG. **10** illustrates a state where the electronic device according to the embodiment is placed on a setting surface; and

FIG. **11** is a cross-sectional view illustrating movements of a hinge mechanism and the exterior component for switching the electronic device according to the embodiment from the closed position to the inverted position.

## DETAILED DESCRIPTION

Hereinafter, embodiments will be described in detail with reference to the drawings as appropriate. However, there will be instances in which detailed description beyond what is necessary is omitted. For example, detailed description of subject matter that is previously well-known, as well as redundant description of components that are substantially the same will in some cases be omitted. This is to prevent the following description from being unnecessarily lengthy, in order to facilitate understanding by a person of ordinary skill in the art.

The inventors provide the following description and the accompanying drawings in order to allow a person of ordinary skill in the art to sufficiently understand the present disclosure, and the description and the drawings are not intended to restrict the subject matter of the scope of the patent claims.

Hereinafter, an exemplary embodiment will be described with reference to FIGS. **1** to **11**.

[1. Entire Configuration of Electronic Device]

FIG. **1** is a perspective view of an electronic device **100**, in an opened position, according to the present embodiment. FIG. **2** is a side view of the electronic device **100**, in the opened position, according to the present embodiment. FIG. **3** is a top view of the electronic device **100**, in the opened position, according to the present embodiment. FIG. **4** is a front view illustrating a front side end face **101***c* of a first casing **101** according to the present embodiment. FIG. **5** is a front view illustrating a rear side end face **101***d* of the first casing **101** according to the present embodiment. FIG. **6** is a perspective view of the electronic device **100** according to the present embodiment in a state where the electronic device **100** is being switched from a closed position through the opened position to an inverted position.

As shown in FIG. **1**, the electronic device **100** of the present embodiment is a notebook computer which is one example of an information processing apparatus. The electronic device **100** includes: the first casing **101** having operation sections **110** provided on a top surface **101***a*; a second casing **102** having a display **103** provided on a front surface **102***a*; a hinge mechanism **120** connecting a rear side portion of the first casing **101** to one of end portions (a lower side portion in FIG. **1**) of the second casing **102**; and exterior components **123** and **124** that act as legs for the electronic device **100**. In the present

embodiment, the exterior components **123** and **124** are covers for the hinge mechanism **120**. The operation sections **110** are sections on which an operation is received from a user of the electronic device **100**, and are implemented as, for example, a keyboard, a touch pad, and a touch panel. The touch panel is disposed on the display **103** so as to overlap the display **103**. In the following description, the hinge mechanism **120** side of the first casing **101** is referred to as "far side" or "rear side", and a side opposite thereto is referred to as "near side" or "front side".

As shown in FIG. **1** and FIG. **2**, the first casing **101** is a thin casing having a roughly rectangular shape as viewed in a planar manner. The first casing **101** has the top surface **101***a*, a back surface **101***b*, the front side end face **101***c*, and the rear side end face **101***d* (far side end face). The first casing **101** has a CPU, a memory, an HDD, a battery, and the like mounted therein (not shown). The keyboard and the touch pad of the operation sections **110** as described above are provided on the top surface **101***a* of the first casing **101**. For example, a portion through which the battery is removed is formed on the back surface **101***b* of the first casing **101** (not shown). A connection terminal for an electrical cord, a connection port (for example, a USB port) for a peripheral device, and the like are formed on the outer circumferential surface (a surface extending in the thickness direction of the first casing **101**) of the first casing **101** (not shown).

As shown in FIG. **1**, in the first casing **101**, a first hinge recess **131***a* and a second hinge recess **131***b* are formed in the rear side end face **101***d* so as to be recessed toward the near side of the first casing **101**. In the hinge recesses **131***a* and **131***b*, the hinge mechanism **120** and the exterior components **123** and **124** are provided. The first hinge recess **131***a* is formed near the far right side corner of the first casing **101** in FIG. **3**. The second hinge recess **131***b* is formed near the far left side corner of the first casing **101** in FIG. **3**.

Each of the hinge recesses **131***a* and **131***b* has a width, in the left-right direction of the first casing **101**, which is greater than a depth in the upward-downward direction (the front-rear direction of the first casing **101**) in FIG. **3**. When each of the hinge recesses **131***a* and **131***b* is viewed from above the first casing **101**, roughly arc-shaped wall surfaces extend toward the far side from both ends, respectively, of a linear bottom surface located on the near side (the lower side in FIG. **3**), so as to spread in the width direction (the left-right direction in FIG. **3**). The width of each of the hinge recesses **131***a* and **131***b* is reduced toward the front side of the first casing **101**.

As shown in FIG. **1** and FIG. **2**, the second casing **102** is a thin casing having a roughly rectangular shape as viewed in a planar manner. The second casing **102** has the front surface **102***a*, a back surface **102***b*, a base end face **102***c*, and a top end face **102***d*. The shape and size of the second casing **102** are almost the same as the shape and size of the first casing **101**, as viewed in the planar manner. In the second casing **102**, the display **103** occupies a large part of the front surface **102***a*. In the second casing **102**, the back surface **102***b* opposite to the display **103** is a shield surface for protecting the electronic device **100**.

As shown in FIG. **1**, in the second casing **102**, a first hinge recess **132***a* and a second hinge recess **132***b* are formed in the base end face **102***c* so as to be recessed toward the top end face of the second casing **102**. The hinge recesses **132***a* and **132***b* are formed at such positions as to correspond to the hinge recesses **131***a* and **131***b*, respectively, of the first casing **101**. In the hinge recesses **132***a* and **132***b*, the hinge mechanism **120** and the exterior components **123** and **124** are provided. The first hinge recess **132***a* is formed near the lower right corner of the second casing **102** in FIG. **4**. The second hinge recess **132***b* is formed near the lower left corner of the second casing **102** in FIG. **4**.

Each of the hinge recesses **132***a* and **132***b* has a width, in the left-right direction of the second casing **102**, which is greater than a depth in the upward-downward direction in FIG. **4**. When each of the hinge recesses **132***a* and **132***b* is viewed from the front of the second casing **102**, linear wall surfaces extend from both ends, respectively, of a linear bottom surface in almost the perpendicularly downward direction. Each of the hinge recesses **132***a* and **132***b* has an almost uniform width in the depth direction. Each of the hinge recesses **132***a* and **132***b* has a width that is almost equal to the width of an opening of each of the hinge recesses **131***a* and **131***b* of the first casing **101**.

As shown in FIG. **5**, the hinge mechanism **120** includes a first rotation mechanism **120***a* and a second rotation mechanism **120***b*. The first rotation mechanism **120***a* is connected to the first casing **101** in the first hinge recess **131***a* of the first casing **101** so as to be rotatable, and is connected to the second casing **102** in the first hinge recess **132***a* of the second casing **102** so as to be rotatable. On the other hand, the second rotation mechanism **120***b* is connected to the first casing **101** in the second hinge recess **131***b* of the first casing **101** so as to be rotatable, and is connected to the second casing **102** in the second hinge recess **132***b* of the second casing **102** so as to be rotatable. The hinge mechanism **120** will be described below in detail.

The exterior components **123** and **124** include the first exterior component **123** that is a cover for the first rotation mechanism **120***a*, and the second exterior component **124** that is a cover for the second rotation mechanism **120***b*. The first exterior component **123** is disposed across the first hinge recess **131***a* of the first casing **101**, and the first hinge recess **132***a* of the second casing **102**. On the other hand, the second exterior component **124** is disposed across the second hinge recess **131***b* of the first casing **101** and the second hinge recess **132***b* of the second casing **102**. The exterior components **123** and **124** will be described below in detail.

The hinge mechanism **120** is structured so as to allow the electronic device **100** to switch from a closed position through an opened position to an inverted position by the second casing **102** pivoting on a portion at which the first casing **101** and the second casing **102** are connected to each other. The second casing **102** can pivot on the portion at which the first casing **101** and the second casing **102** are connected to each other, to rotate about 360 degrees by means of the hinge mechanism **120**. As shown in FIG. **6**(*a*), in the closed position, the electronic device **100** is closed such that the front surface **102***a* of the second casing **102** overlaps the top surface **101***a* of the first casing **101**. In the closed position, the display **103** opposes the keyboard of the first casing **101**.

When the second casing **102** is rotated from the closed position, the electronic device **100** enters the opened position as shown in FIG. **6**(*b*). In the opened position, the electronic device **100** is opened such that the second casing **102** is away from the near side of the first casing **101**. In the opened position, a user is allowed to view the display **103** from the near side of the first casing **101**. When the second casing **102** is further rotated in the state shown in FIG. **6**(*b*), the electronic device **100** enters the opened position as shown in FIG. **6**(*c*) where the front surface **102***a* of the second casing **102** and the top surface **101***a* of the first casing **101** face in the same direction. When the second casing **102** is further rotated in the state shown in FIG. **6**(*c*), the electronic device **100** is switched through a position, as shown in FIG. **6**(*d*), where the front surface **102***a* of the second casing **102** faces rearward, and a

position, as shown in FIG. **6**(*e*), where the back surface **102***b* of the second casing **102** is close to the back surface **101***b* of the first casing **101**, to the inverted position, as shown in FIG. **6**(*f*), where the back surface **102***b* of the second casing **102** overlaps the back surface **101***b* of the first casing **101**. In the inverted position, a user is allowed to use the electronic device **100** like a tablet. In this case, for example, the user is allowed to use the electronic device **100** in a state where the display **103** faces upward, and the top surface **101***a* of the first casing faces downward.

When the second casing **102** is rotated in the direction opposite to the direction in which the closed position is switched to the inverted position, the electronic device **100** is returned from the inverted position through the opened position to the closed position. When the position shown in FIG. **6**(*a*) is switched to the position shown in FIG. **6**(*c*), although the second casing **102** rotates, the first exterior component **123** and the second exterior component **124** do not rotate. On the other hand, when the position shown in FIG. **6**(*c*) is switched to the position shown in FIG. **6**(*f*), the first exterior component **123** and the second exterior component **124** each rotate almost 180 degrees about a second rotation shaft **122** described below according to the rotation of the second casing **102**.

[2. Structures of Exterior Components and Hinge Mechanism]

FIG. **7** is a front view of each of the exterior components **123** and **124** according to the present embodiment. FIG. **8** is a rear view of each of the exterior components **123** and **124** according to the present embodiment. FIG. **9** is a side view of each of the exterior components **123** and **124** according to the present embodiment. For each of the exterior components **123** and **124**, a side thereof which is exposed in the case of the electronic device **100** being in the closed position and the opened position is referred to as a front surface, and a side opposite thereto is referred to as a rear surface.

Firstly, the exterior components **123** and **124** will be described.

The electronic device **100** includes the first exterior component **123** for the first rotation mechanism **120***a* and the second exterior component **124** for the second rotation mechanism **120***b* as described above. The first exterior component **123** and the second exterior component **124** rotate according to the second casing **102** being rotated in the case of the switching between the opened position and the inverted position being performed. The first exterior component **123** is a box-shaped component in which a first rotation shaft **121** and a second rotation shaft **122** of the first rotation mechanism **120***a* as described below are provided. The second exterior component **124** is a box-shaped component in which a first rotation shaft **121** and a second rotation shaft **122** of the second rotation mechanism **120***b* as described below are provided. The first exterior component **123** and the second exterior component **124** have the same structure. Therefore, in the following description, the first exterior component **123** will be described.

As shown in FIG. **9**, the first exterior component **123** is a box-shaped component having a first principal surface **123***a* and a second principal surface **123***b* that are parallel to each other. In the first exterior component **123**, a first side surface **123***c* and a second side surface **123***d* are also formed so as to be parallel to each other. One end face **123***e* (the upper surface in FIG. **9**) of the first exterior component **123** is formed in a roughly semicircular shape as viewed in cross-section. Further, the other end face **123***f* of the first exterior component **123** is formed such that portions extending from the side surfaces **123***c* and **123***d*, respectively, are roughly arc-shaped so as to be curved inward, as shown in FIG. **7** and FIG. **8**. Therefore, in a region of the other end face of the first exterior component **123**, the width in the left-right direction shown in FIG. **7** and FIG. **8** is reduced toward the other end. In the center portion of the other end face **123***f* of the first exterior component **123**, a flat surface **123***g* having a roughly rectangular shape is formed. The flat surface **123***g* extends parallel to the one end face **123***e* of the first exterior component **123**. The flat surface **123***g* extends in a direction (the front-rear direction of the first casing **101**) orthogonal to the second rotation shaft **122** described below.

As shown in FIG. **9**, a first shaft receiver **151** for supporting the first rotation shaft **121** so as to allow the first rotation shaft **121** to be rotatable, and a second shaft receiver **152** for supporting the second rotation shaft **122** so as to allow the second rotation shaft **122** to be rotatable, are provided in the first exterior component **123**. The first shaft receiver **151** is provided as circular through holes formed on one end side (the upper side portion in FIG. **9**) of the first exterior component **123**, in the first side surface **123***c* and the second side surface **123***d*, respectively. The second shaft receiver **152** is provided as circular through holes formed on the other end side (the lower side portion in FIG. **9**) of the first exterior component **123**, in the first side surface **123***c* and the second side surface **123***d*, respectively.

As shown in FIG. **9**, the first exterior component **123** includes a first component **125** and a second component **126**. The first component **125** and the second component **126** are integrated with each other by a screw being inserted into a screw insertion hole **125***a* formed in the first component **125** and fitted into a screw fitting portion (not shown) formed in the second component **126**.

Subsequently, the hinge mechanism **120** will be described.

The hinge mechanism **120** includes the first rotation mechanism **120***a* and the second rotation mechanism **120***b* as described above. The first rotation mechanism **120***a* and the second rotation mechanism **120***b* rotate according to the second casing **102** being rotated in the case of the switching between the opened position and the inverted position being performed. The first rotation mechanism **120***a* and the second rotation mechanism **120***b* have the same structure. Therefore, in the following description, the first rotation mechanism **120***a* will be described.

The first rotation mechanism **120***a* includes: the first rotation shaft **121**; the second rotation shaft **122**; the first shaft receiver **151** for supporting the first rotation shaft **121** so as to allow the first rotation shaft **121** to be rotatable; and the second shaft receiver **152** for supporting the second rotation shaft **122** so as to allow the second rotation shaft **122** to be rotatable, as shown in FIG. **7**, FIG. **8**, and FIG. **9**. The first rotation shaft **121** and the second rotation shaft **122** act as rotation shafts for opening and closing operation. The first rotation shaft **121** and the second rotation shaft **122** are each formed in a roughly cylindrical shape. As described above, the first shaft receiver **151** and the second shaft receiver **152** of the first rotation mechanism **120***a* are provided in the first exterior component **123**. As described above, the first shaft receiver **151** and the second shaft receiver **152** of the second rotation mechanism **120***b* are provided in the second exterior component **124**.

The first rotation shaft **121** is inserted into the first shaft receiver **151** (the through holes) formed in the first side surface **123***c* and the second side surface **123***d*, and projects from the first side surface **123***c* and the second side surface **123***d*. The first rotation shaft **121** of the first rotation mechanism **120***a* is fixed to the second casing **102** in the first hinge recess **132***a* of the second casing **102**. The first rotation shaft **121** of

the second rotation mechanism **120***b* is fixed to the second casing **102** in the second hinge recess **132***b* of the second casing **102**.

The second rotation shaft **122** is inserted into the second shaft receiver **152** (the through holes) formed in the first side surface **123***c* and the second side surface **123***d*, and project from the first side surface **123***c* and the second side surface **123***d*. The second rotation shaft **122** of the first rotation mechanism **120***a* is fixed to the first casing **101** in the first hinge recess **131***a* of the first casing **101**. The second rotation shaft **122** of the second rotation mechanism **120***b* is fixed to the first casing **101** in the second hinge recess **131***b* of the first casing **101**.

[3. Function of Exterior Components and the Like]

Firstly, a state where the exterior components **123** and **124** are used as legs for the electronic device **100** in the opened position will be described.

FIG. **10** illustrates a state where the electronic device **100** according to the present embodiment is placed on a setting surface **160**. FIG. **10**(*a*) illustrates a case where the electronic device **100** is in the opened position. FIG. **10**(*b*) illustrates a case where the electronic device **100** is in the inverted position.

As shown in FIG. **10**(*a*), in a case where the electronic device **100** is in the opened position, the exterior components **123** and **124** project from the back surface **101***b* of the first casing **101**. In this case, when the electronic device **100** is placed on the setting surface **160** such as a desk or the like, the exterior components **123** and **124** act as rear legs for the electronic device **100**, to tilt the top surface **101***a* of the first casing **101** toward the near side.

The exterior components **123** and **124** rotate with the second casing **102** when switching between the opened position and the inverted position is performed, and thus switching between a state where the exterior components **123** and **124** project from the back surface **101***b* of the first casing **101** in the opened position, and a state where the exterior components **123** and **124** project from the top surface **101***a* of the first casing **101** in the inverted position, is performed. As shown in FIG. **10**(*b*), in the inverted position, when the electronic device **100** is placed on the setting surface **160** such that the top surface **101***a* of the first casing **101** faces downward, the exterior components **123** and **124** act as the legs for the electronic device **100**, to tilt the front surface **102***a* of the second casing **102** toward the near side.

Subsequently, movements of the exterior components **123** and **124** for switching from the opened position to the inverted position will be described.

FIG. **11** is a cross-sectional view illustrating movements of the hinge mechanism **120** and the exterior components **123** and **124** for switching the electronic device **100** according to the present embodiment from the closed position to the inverted position. FIG. **11**(*a*) illustrates a case where the electronic device **100** is in the closed position. FIG. **11**(*b*) illustrates a state where the second casing **102** is rotated about 180 degrees from the position shown in FIG. **11**(*a*). FIG. **11**(*c*) to FIG. **11**(*f*) illustrate states where the second casing **102** is further rotated from the position shown in FIG. **11**(*b*). In FIG. **11**(*f*), the electronic device **100** is in the inverted position.

In the state shown in FIG. **11**(*a*), the first rotation shaft **121** and the second rotation shaft **122** are aligned in order, respectively, from the upper side, in the thickness direction of the electronic device **100**. When, in this state, a user opens the electronic device **100** and presses the second casing **102** backward, the second casing **102** is rotated about the first rotation shaft **121**, and enters a state shown in FIG. **11**(*b*). In this state, the front surface **102***a* of the second casing **102** and the top surface **101***a* of the first casing **101** face in the same direction. While the state shown in FIG. **11**(*a*) shifts to the state shown in FIG. **11**(*b*), although the second casing **102** rotates, the exterior components **123** and **124** do not rotate.

When the user presses the second casing **102** downward in the state shown in FIG. **11**(*b*), the second casing **102** is rotated about the second rotation shaft **122**, and shifts through the state shown in FIG. **11**(*c*), the state shown in FIG. **11**(*d*), and the state shown in FIG. **11**(*e*), to the inverted position shown in FIG. **11**(*f*). In the inverted position, the second rotation shaft **122** and the first rotation shaft **121** are aligned in order, respectively, from the upper side, in the thickness direction of the electronic device **100** in a state where the top surface **101***a* of the first casing **101** faces upward. While the state shown in FIG. **11**(*b*) shifts to the state shown in FIG. **11**(*f*), the exterior components **123** and **124** are rotated with the second casing **102**.

The flat surface **123***g* that acts as the top end surface of the leg in each of the exterior components **123** and **124** passes in and through the hinge recesses **131***a* and **131***b*, as shown in FIG. **11**(*c*), FIG. **11**(*d*), and FIG. **11**(*e*). In the inverted position shown in FIG. **11**(*f*), the flat surface **123***g* of each of the exterior components **123** and **124** faces in the direction opposite to the direction in the opened position, and projects from the top surface **101***a* of the first casing **101**.

Further, for switching between the closed position and the state shown in FIG. **11**(*b*), the second casing **102** is rotated about the first rotation shaft **121**. For switching between the state shown in FIG. **11**(*b*) and the inverted position, the second casing **102** is rotated about the second rotation shaft **122**. In the state shown in FIG. **11**(*b*), if the second casing **102** is pressed downward, the first rotation shaft **121** does not rotate. Further, in the state shown in FIG. **11**(*b*), if the second casing **102** is pressed upward, the second rotation shaft **122** does not rotate.

[4. Effects and the Like]

In the present embodiment, the exterior components **123** and **124** rotate with the hinge mechanism **120** when switching between the opened position and the inverted position is performed. Thus, switching between a state where the exterior components **123** and **124** project from the back surface **101***b* of the first casing **101** in the opened position, and a state where the exterior components **123** and **124** project from the top surface **101***a* of the first casing **101** in the inverted position, is performed. Therefore, the electronic device **100** that has the useful leg to be used in the opened position and the inverted position, can be provided. In the opened position, a user is allowed to easily connect a subject to be connected with a connection terminal for an electrical cord and a connection port for a peripheral device on the outer circumferential surface of the first casing **101**. Further, in a case where a user places the electronic device **100** on the setting surface **160** so as to face the display **103** upward in the inverted position, contact of the operation sections **110** with the setting surface **160** can be avoided. Further, in the inverted position, a gap is generated between the electronic device **100** and the setting surface **160**, and thus a user is allowed to easily lift the electronic device **100** from the setting surface **160**.

In the present embodiment, the hinge mechanism **120** includes the rotation shafts **121** and **122** that allow the second casing **102** to rotate relative to the first casing **101** when switching between the closed position and the inverted position is performed, and the exterior components **123** and **124** are box-shaped components in which the rotation shafts **121** and **122** of the hinge mechanism **120** are provided. Therefore, the box-shaped components for the rotation shafts **121** and

122 of the hinge mechanism 120 are effectively utilized, to form legs for the electronic components.

Further, in the present embodiment, the rotation prevention portion 123*g* is further provided which prevents the exterior components 123 and 124 from rotating on the second rotation shaft 122 connected to the first casing 101, in a state where the exterior components 123 and 124 act as legs for the electronic device 100. Therefore, the electronic device 100 can be stably supported by means of the exterior components 123 and 124.

Further, in the present embodiment, the flat surface 123*g* is formed in the top end portion of the leg for the electronic device 100 as is implemented by each of the exterior components 123 and 124, so as to extend in the direction orthogonal to the second rotation shaft 122. The flat surface 123*g* acts as the rotation prevention portion. Therefore, the electronic device 100 can be stably supported by means of the exterior components 123 and 124 in a simplified structure.

Further, in the present embodiment, in each of the exterior components 123 and 124, its length in the direction in which the rotation shafts 121 and 122 extend is reduced toward the top end of the leg for the electronic device 100. Therefore, the sizes of the hinge recesses 131*a* and 131*b* in and through which the top ends of the exterior components 123 and 124 pass can be reduced.

(Other Embodiments)

As described above, the exemplary embodiment has been descried above as examples of the technology disclosed in the present application. However, the technology according to the present disclosure is not limited to the exemplary embodiment, and is also applicable to other embodiments implemented by modifications, replacements, additions, omissions, or the like as appropriate. Furthermore, another exemplary embodiment can be implemented by combining the components described above for the exemplary embodiment.

Hereinafter, other exemplary embodiments will be described.

In the embodiment described above, a notebook computer is described as an example of the electronic device 100. However, the electronic device 100 may be, for example, foldable mobile telephone terminals, foldable electronic game machines, and foldable electronic dictionary terminals. The electronic device may be a device that includes the hinge mechanism 120 that allows switching from the closed position through the opened position to the inverted position.

Further, in the embodiment described above, the exterior components 123 and 124 act as covers for the hinge mechanism 120. However, the exterior components 123 and 124 may be other components integrated with the cover for the hinge mechanism 120 when the exterior components 123 and 124 can rotate with the second casing 102 for switching between the opened position and the inverted position.

Further, in the present embodiment, the flat surface 123*g* of each of the exterior components 123 and 124 is described as an example of the rotation prevention portion. However, the rotation prevention portion is not limited thereto. The rotation prevention portion may be structured so as to mechanically lock the second rotation shaft 122. For example, the rotation prevention portion may be a projection that is operated by a user to switch between a state where the projection is fitted into a recess formed on the outer circumferential surface of the second rotation shaft 122, and a state where the projection is apart from the recess. The projection is, for example, formed in each of the exterior components 123 and 124 so as to be movable. The electronic device 100 is structured such that, if the second casing 102 is pressed upward in the state shown in FIG. 11(*b*), the exterior components 123 and 124 are prevented from rotating counterclockwise on the second rotation shaft 122. Therefore, even if a user draws the first casing 101 toward the near side in the case of the electronic device 100 being placed by using the exterior components 123 and 124 as the legs, rotation of the exterior components 123 and 124 on the second rotation shaft 122 due to a friction between the setting surface 160 and the exterior components 123 and 124, may be prevented. The rotation prevention portion may be structured so as to prevent the exterior components 123 and 124 from rotating (clockwise) on the second rotation shaft 122 in the case of a user pressing the first casing 101 toward the far side.

As presented above, one embodiment has been described as an example of the technology according to the present disclosure. For this purpose, the accompanying drawings and the detailed description are provided.

Therefore, components in the accompanying drawings and the detail description may include not only components essential for solving problems, but also components that are provided to illustrate the above described technology and are not essential for solving problems. Therefore, such inessential components should not be readily construed as being essential based on the fact that such inessential components are shown in the accompanying drawings or mentioned in the detailed description.

Further, the above described embodiment has been described to exemplify the technology according to the present disclosure, and therefore, various modifications, replacements, additions, and omissions may be made within the scope of the claims and the scope of the equivalents thereof.

What is claimed is:

**1**. An electronic device, comprising:

a first casing having an operation section on a top surface;

a second casing having a display on a front surface;

a hinge mechanism configured to connect the first casing to the second casing, the hinge mechanism configured to rotate the second casing, relative to the first casing, on a connection portion in which the first casing is connected to the second casing, to allow the electronic device to switch from a closed position where the front surface of the second casing overlaps the top surface of the first casing, through an opened position where the second casing is raised relative to the first casing, to an inverted position where a back surface of the second casing overlaps a back surface of the first casing;

an exterior component configured to rotate in synchronization with the second casing when switching between the opened position and the inverted position is performed, and to switch, by rotating in synchronization with the second casing, between a state where the exterior component projects from the back surface of the first casing to be a leg for the electronic device in the opened position, and a state where the exterior component projects from the top surface of the first casing to be a leg for the electronic device in the inverted position; and

a rotation prevention portion configured to prevent the exterior component from rotating on the rotation shaft connected to the first casing, when the exterior component is a leg for the electronic device;

wherein the rotation prevention portion comprises a flat surface that extends in a direction orthogonal to the rotation shaft, formed at a distal end of the exterior component.

**2**. The electronic device according to claim **1**, wherein

the hinge mechanism includes a rotation shaft configured to rotate the second casing relative to the first casing

when switching between the closed position and the inverted position is performed, and

the exterior component is a box-shaped component in which the rotation shaft of the hinge mechanism is provided.

**3**. The electronic device according to claim **2**, wherein, in the exterior component, a length in a direction in which the rotation shaft extends is reduced toward a top end of the leg for the electronic device.

**4**. The electronic device according to claim **2**, wherein

the hinge mechanism includes a first rotation shaft and a second rotation shaft as the rotation shaft,

the electronic device switches from the closed position to the inverted position, through a first shift state where the second casing is rotated relative to the first casing on the first rotation shaft, and a second shift state, immediately following the first shift state, where the second casing is rotated relative to the first casing on the second rotation shaft, and

the exterior component is a box-shaped component in which the first rotation shaft and the second rotation shaft are provided.

**5**. The electronic device according to claim **4**, wherein

the first shift state includes a state where the operation section of the first casing and the display of the second casing face each other at an angle less than 180 degrees, and

the second shift state includes a state where the operation section of the first casing and the display of the second casing form an angle greater than 180 degrees.

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